THAT WHICH IS CLAIMED IS:

1. A process for upgrading hydrocarbons comprising the steps of:

a) heating a hydrocarbon feedstock comprising CPD, DCPD, C_5 diolefins, benzene, toluene, and xylene in a heating zone, to dimerize CPD to DCPD, thereby forming a first effluent;

b) separating said first effluent into a C_6 + stream and a C_5 diolefin stream comprising C_5 diolefins;

c) separating said C_6+ stream into a C_6 - C_9 stream and a C_{10}+ stream;

d) separating said C_{10}+ stream into a fuel oil stream and a DCPD stream comprising DCPD; and

e) hydrotreating said C_6 - C_9 stream to thereby form a BTX stream comprising benzene, toluene and xylene.

2. A process in accordance with claim 1 wherein step e) is further characterized to include the steps of:

contacting said C_6 - C_9 stream with a hydrogenation catalyst, in a first reaction zone and in the presence of hydrogen, to hydrogenate at least a portion of the olefins, diolefins, alkynes, and styrene contained in said C_6 - C_9 stream, thereby forming a second effluent; and

contacting said second effluent with a hydrodesulfurization catalyst, in a second reaction zone and in the presence of hydrogen, to

desulfurize at least a portion of the sulfur-containing compounds and to saturate substantially most of the olefinic compounds contained in said second effluent, thereby forming said BTX stream.

3. A process in accordance with claim 2 wherein said hydrogenation catalyst comprises a Group VIII metal selected from the group consisting of iron, cobalt, nickel, ruthenium, rhodium, palladium, osmium, iridium, platinum, and combinations of any two or more thereof.

4. A process in accordance with claim 2 wherein said hydrogenation catalyst comprises palladium.

5. A process in accordance with claim 2 wherein said hydrodesulfurization catalyst comprises a Group VIII metal selected from the group consisting of iron, cobalt, nickel, ruthenium, rhodium, palladium, osmium, iridium, platinum, and combinations of any two or more thereof, and a Group VIB metal selected from the group consisting of chromium, molybdenum, tungsten, and combinations of any two or more thereof.

6. A process in accordance with claim 2 wherein said hydrodesulfurization catalyst comprises nickel and molybdenum.

7. A process in accordance with claim 1 wherein the heating in step a) is conducted at a temperature in the range of from about 100°F to about 450°F.

8. A process in accordance with claim 1 wherein the heating in step a) is conducted at a temperature in the range of from about 200°F to about 400°F.

9. A process in accordance with claim 1 wherein the heating in step a) is conducted at a temperature in the range of from 200°F to 300°F.

10. A process in accordance with claim 1 wherein step c) is further characterized to include the steps of:

providing a separation column, an overhead condenser, and a reboiler, said separation column defining a separation zone having an upper portion, a lower portion and an intermediate portion, said intermediate portion of said separation zone comprising at least about 50 theoretical trays:

removing substantially all of the rust contained in said separation column, said overhead condenser and said reboiler;

introducing said C_6 + stream to said intermediate portion of said separation zone;

allowing a vaporous overhead stream comprising C_6 - C_9 hydrocarbons, and having a pressure in the range of from about 0.5 psia to about 3.0 psia and a temperature in the range of from about 160°F to about 200°F, to pass from said upper portion of said separation column to said overhead condenser;

condensing at least a portion of said vaporous overhead stream in said overhead condenser thereby forming a condensate which has a temperature in the range of from about 50°F to about 90°F;

refluxing at least a portion of said condensate from said overhead condenser to said upper portion of said separation zone;

allowing a liquid bottoms stream comprising C_{10}+ hydrocarbons to pass from said lower portion of said separation column to said reboiler;

reboiling at least a portion of said liquid bottoms stream in said reboiler at a temperature in the range of from about 210°F to about 250°F thereby forming a reboiled stream;

introducing said reboiled stream to said lower portion of said separation zone;

recovering the remaining portion of said liquid bottoms stream from said reboiler thereby forming said C_{10}+ stream; and

recovering the remaining portion of said condensate from said overhead condenser thereby forming said C_6 -C_9 stream.

11. A process in accordance with claim 1 wherein step d) is further characterized to include the steps of:

providing a separation column, an overhead condenser, and a reboiler, said separation column defining a separation zone having an upper

portion, a lower portion and an intermediate portion, said intermediate portion of said separation zone comprising at least about 9 theoretical trays:

removing substantially all of the rust contained in said separation column, said overhead condenser and said reboiler;

introducing said C_{10}+ stream to said intermediate portion of said separation zone;

allowing a vaporous overhead stream comprising DCPD, and having a pressure in the range of from about 0.1 psia to about 2.0 psia and a temperature in the range of from about 160°F to about 200°F, to pass from said upper portion of said separation zone to said overhead condenser;

condensing at least a portion of said vaporous overhead stream in said overhead condenser thereby forming a condensate which has a temperature in the range of from about 80°F to about 100°F;

refluxing at least a portion of said condensate to said upper portion of said separation zone;

allowing a liquid bottoms stream to pass from said lower portion of said separation zone to said reboiler;

reboiling at least a portion of said liquid bottoms stream in said reboiler at a temperature in the range of from about 190°F to about 240°F thereby forming a reboiled stream;

introducing said reboiled stream to said lower portion of said separation zone;

recovering the remaining portion of said condensate from said overhead condenser thereby forming said DCPD stream comprising DCPD; and

recovering the remaining portion of said liquid bottoms stream from said reboiler thereby forming said fuel oil stream.

12. A process for upgrading hydrocarbons comprising the steps of:

a) heating a hydrocarbon feedstock comprising CPD, DCPD, C_5 diolefins, benzene, toluene, and xylene in a heating zone to dimerize CPD to DCPD, thereby forming a first effluent;

b) separating said first effluent into a C_5 - C_9 stream and a C_{10}+ stream;

c) separating said C_{10}+ stream into a fuel oil stream and a DCPD stream comprising DCPD;

d) contacting said C_5 - C_9 stream with a selective hydrogenation catalyst, in a first reaction zone and in the presence of hydrogen, to hydrogenate at least a portion of the diolefins, alkynes, and styrene contained in said C_5 - C_9 stream, thereby forming a second effluent;

e) separating said second effluent into a C_6 - C_9 stream and a C_5 olefin stream comprising C_5 olefins;

f) contacting said C_6 - C_9 stream with a hydrodesulfurization catalyst, in a second reaction zone and in the presence of hydrogen, to desulfurize at least a portion of the sulfur-containing compounds contained in said C_6 - C_9 stream and to saturate substantially most of the olefinic compounds contained in said C_6 - C_9 stream, thereby forming a BTX stream comprising benzene, toluene and xylene.

13. A process in accordance with claim 12 wherein said selective hydrogenation catalyst comprises a palladium-containing material selected from the group consisting of palladium metal, palladium oxides, and combinations of any two or more thereof, and a component selected from the group consisting of silver, an alkali-metal halide, and combinations of any two or more thereof.

14. A process in accordance with claim 12 wherein said selective hydrogenation catalyst comprises a palladium-containing material selected from the group consisting of palladium metal, palladium oxides, and combinations of any two or more thereof, and an alkali-metal iodide.

15. A process in accordance with claim 12 wherein said hydrogenation catalyst comprises palladium, silver and potassium fluoride.

16. A process in accordance with claim 12 wherein said selective hydrogenation catalyst comprises a palladium-containing material selected

from the group consisting of palladium metal, palladium oxides, and combinations of any two or more thereof, and potassium iodide.

17. A process in accordance with claim 12 wherein said hydrodesulfurization catalyst comprises a Group VIII metal selected from the group consisting of iron, cobalt, nickel, ruthenium, rhodium, palladium, osmium, iridium, platinum, and combinations of any two or more thereof and a group VIB metal selected from the group consisting of chromium, molybdenum, tungsten, and combinations of any two or more thereof.

18. A process in accordance with claim 12 wherein said hydrodesulfurization catalyst comprises nickel and molybdenum.

19. A process in accordance with claim 12 wherein the heating in step a) is conducted at a temperature in the range of from about 100°F to about 450°F.

20. A process in accordance with claim 12 wherein the heating in step a) is conducted at a temperature in the range of from about 200°F to about 400°F.

21. A process in accordance with claim 12 wherein the heating in step a) is conducted at a temperature in the range of from 200°F to 300°F.

22. A process in accordance with claim 12 wherein step b) is further characterized to include the steps of:

providing a separation column, an overhead condenser, and a reboiler, said separation column defining a separation zone having an upper portion, a lower portion and an intermediate portion, said intermediate portion of said separation zone comprising at least about 50 theoretical trays:

removing substantially all of the rust contained in said separation column, said overhead condenser and said reboiler;

introducing said first effluent to said intermediate portion of said separation zone;

allowing a vaporous overhead stream comprising C_5 - C_9 hydrocarbons, and having a pressure in the range of from about 0.5 psia to about 3.0 psia and a temperature in the range of from about 160°F to about 200°F, to pass from said upper portion of said separation column to said overhead condenser;

condensing at least a portion of said vaporous overhead stream in said overhead condenser thereby forming a condensate which has a temperature in the range of from about 50°F to about 90°F;

refluxing at least a portion of said condensate from said overhead condenser to said upper portion of said separation zone;

allowing a liquid bottoms stream comprising C_{10}+ hydrocarbons to pass from said lower portion of said separation column to said reboiler;

reboiling at least a portion of said liquid bottoms stream in said reboiler at a temperature in the range of from about 210°F to about 250°F thereby forming a reboiled stream and a remaining portion of said first liquid bottoms stream;

introducing said reboiled stream to said lower portion of said separation zone;

recovering the remaining portion of said liquid bottoms stream from said reboiler thereby forming said C_{10}+ stream; and

recovering the remaining portion of said condensate from said overhead condenser thereby forming said C_5 -C_9 stream.

23. A process in accordance with claim 12 wherein step c) is further characterized to include the steps of:

providing a separation column, an overhead condenser, and a reboiler, said separation column defining a separation zone having an upper portion, a lower portion and an intermediate portion, said intermediate portion of said separation zone comprising at least about 9 theoretical trays:

removing substantially all of the rust contained in said separation column, said overhead condenser and said reboiler;

introducing said C_{10}+ stream to said intermediate portion of said separation zone;

allowing a vaporous overhead stream comprising DCPD, and having a pressure in the range of from about 0.1 psia to about 2.0 psia and a temperature in the range of from about 160°F to about 200°F, to pass from said upper portion of said separation zone to said overhead condenser;

condensing at least a portion of said vaporous overhead stream in said overhead condenser thereby forming a condensate which has a temperature in the range of from about 80°F to about 100°F;

refluxing at least a portion of said condensate to said upper portion of said separation zone;

allowing a liquid bottoms stream to pass from said lower portion of said separation zone to said reboiler;

reboiling at least a portion of said liquid bottoms stream in said reboiler at a temperature in the range of from about 190°F to about 240°F thereby forming a reboiled stream;

introducing said reboiled stream to said lower portion of said separation zone;

recovering the remaining portion of said condensate from said overhead condenser thereby forming said DCPD stream comprising DCPD; and

recovering the remaining portion of said liquid bottoms stream from said reboiler thereby forming said fuel oil stream.

24. A process for recovering DCPD from a hydrocarbon feedstock comprising the steps of:

a) providing a first separation column, a first overhead condenser, and a first reboiler, said first separation column defining a first separation zone having an upper portion, a lower portion and an intermediate portion, said intermediate portion of said first separation zone comprising at least about 50 theoretical trays;

b) providing a second separation column, a second overhead condenser, and a second reboiler, said second separation column defining a second separation zone having an upper portion, a lower portion and an intermediate portion, said intermediate portion of said second separation zone comprising at least about 9 theoretical trays;

c) introducing a hydrocarbon feedstock comprising DCPD to said intermediate portion of said first separation zone;

d) allowing a first vaporous overhead stream comprising C_9 - hydrocarbons, and having a pressure in the range of from about 0.5 psia to about 3.0 psia and a temperature in the range of from about 160°F to about 200°F, to pass from said upper portion of said first separation column to said first overhead condenser;

e) condensing at least a portion of said first vaporous overhead stream in said first overhead condenser thereby forming a first condensate which has a temperature in the range of from about 50°F to about 90°F;

f) refluxing at least a portion of said first condensate from said first overhead condenser to said upper portion of said first separation zone;

g) allowing a first liquid bottoms stream comprising C_{10}+ hydrocarbons to pass from said lower portion of said first separation column to said first reboiler;

h) reboiling at least a portion of said first liquid bottoms stream in said first reboiler at a temperature in the range of from about 210°F to about 250°F thereby forming a first reboiled stream and a remaining portion of said first liquid bottoms stream;

i) introducing said first reboiled stream to said lower portion of said first separation zone;

j) introducing the remaining portion of said first liquid bottoms stream to said intermediate portion of said second separation zone;

k) allowing a second vaporous overhead stream comprising DCPD, and having a pressure in the range of from about 0.1 psia to about 2.0 psia and a temperature in the range of from about 160°F to about 200°F, to pass from said upper portion of said second separation zone to said second overhead condenser;

l) condensing at least a portion of said second vaporous overhead stream in said second overhead condenser thereby forming a second condensate which has a temperature in the range of from about 80°F to about 100°F;

m) refluxing at least a portion of said second condensate to said upper portion of said second separation zone and thereby forming a remaining portion of said second condensate;

n) allowing a second liquid bottoms stream comprising fuel oil to pass from said lower portion of said second separation zone to said second reboiler;

o) reboiling at least a portion of said second liquid bottoms stream in said second reboiler at a temperature in the range of from about 190°F to about 240°F thereby forming a second reboiled stream;

p) introducing said second reboiled stream to said lower portion of said second separation zone; and

q) recovering the remaining portion of said second condensate from said second overhead condenser thereby forming a DCPD stream.

25. A process in accordance with claim 24 wherein said intermediate portion of said first separation zone comprises at least about 55 theoretical trays, said pressure of said first vaporous overhead stream in step d) is in the range of from about 0.5 psia to about 2.0 psia, said temperature of said first vaporous overhead stream in step d) is in the range of from about 170°F to

about 200°F, said temperature in step h) is in the range of from about 210°F to about 240°F, said intermediate portion of said second separation zone comprises at least about 10 theoretical trays, said pressure of said second vaporous overhead stream in step k) is in the range of from about 0.2 psia to about 1.0 psia, said temperature of said second vaporous overhead stream in step k) is in the range of from about 180°F to about 200°F, and said temperature in step o) is in the range of from about 200°F to about 220°F.

26. A process in accordance with claim 24 wherein said intermediate portion of said first separation zone comprises at least 60 theoretical trays, said pressure of said first vaporous overhead stream in step d) is in the range of from 1.0 psia to 1.5 psia, said temperature of said first vaporous overhead stream in step d) is in the range of from 180°F to 200°F, said temperature in step h) is in the range of from 220°F to 230°F, said intermediate portion of said second separation zone comprises at least 11 theoretical trays, said pressure of said second vaporous overhead stream in step k) is in the range of from 0.3 psia to 0.6 psia, said temperature of said second vaporous overhead stream in step k) is in the range of from 190°F to 200°F, and said temperature in step o) is in the range of from 200°F to 210°F.

27. A process in accordance with claim 24 wherein said hydrocarbon feedstock stream is introduced to said intermediate portion of said

first separation zone at a theoretical tray location in the range of from about 10 to about 30.

28. A process in accordance with claim 24 wherein said hydrocarbon feedstock is introduced to said intermediate portion of said first separation zone at a theoretical tray location in the range of from about 10 to about 20.

29. A process in accordance with claim 24 wherein said hydrocarbon feedstock is introduced to said intermediate portion of said first separation zone at a theoretical tray location in the range of from 15 to 20.

30. A process in accordance with claim 24 wherein said remaining portion of said first liquid bottoms stream is introduced to said intermediate portion of said second separation zone at a theoretical tray location in the range of from about 2 to about 8.

31. A process in accordance with claim 24 wherein said remaining portion of said first liquid bottoms stream is introduced to said intermediate portion of said second separation zone at a theoretical tray location in the range of from about 3 to about 7.

32. A process in accordance with claim 24 wherein said remaining portion of said first liquid bottoms stream is introduced to said intermediate portion of said second separation zone at a theoretical tray location in the range of from 4 to 6.

33. A process in accordance with claim 24 wherein said at least a portion of said first condensate in step f) is refluxed to said upper portion of said first separation zone at a reflux ratio in the range of from about 0.1 to about 1.0.

34. A process in accordance with claim 24 wherein said at least a portion of said first condensate in step f) is refluxed to said upper portion of said first separation zone at a reflux ratio in the range of from about 0.2 to about 0.7.

35. A process in accordance with claim 24 wherein said at least a portion of said first condensate in step f) is refluxed to said upper portion of said first separation zone at a reflux ratio in the range of from 0.3 to 0.5.

36. A process in accordance with claim 24 wherein said at least a portion of said second condensate in step m) is refluxed to said upper portion of said second separation zone at a reflux ratio in the range of from about 0.1 to about 1.0.

37. A process in accordance with claim 24 wherein said at least a portion of said second condensate in step m) is refluxed to said upper portion of said second separation zone at a reflux ratio in the range of from about 0.2 to about 0.7.

38. A process in accordance with claim 24 wherein said at least a portion of said second condensate in step m) is refluxed to said upper portion of said second separation zone at a reflux ratio in the range of from 0.3 to 0.5.

39. A process in accordance with claim 24 wherein said first separation column, said first overhead condenser, said first reboiler, said second separation column, said second overhead condenser, and said second reboiler are operated in the substantial absence of rust and oxygen.

40. A process in accordance with claim 24 wherein substantially all of the rust contained in said first separation column, said first overhead condenser, said first reboiler, said second separation column, said second overhead condenser, and said second reboiler is removed prior to step c).